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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/800,482  
Filing Date: March 15, 2004  
Appellant(s): BUDAMPATI, RAMAKRISHNA S.

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David D'Zurilla  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 02/20/2009 appealing from the Office  
action mailed 11/21/2008

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,445,910	Oestreich	9-2002
7,242,294	Warrior et al.	7-2007
2001/0018347	Ziv et al.	8-2001
6,990,137	Smee et al.	1-2006

### (9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 2, 5, 6, 9, 10, 13, and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oestreich (US 6445910 B1), hereafter "Oestreich," in view of Warrior et al. (US 7242294 B2), hereafter "Warrior."

Consider claim 1, Oestreich discloses a wireless network comprising multiple first wireless nodes **MS** that transmit signals (see **figs. 1, col. 3 lines 64-67**). Oestreich discloses multiple independent infrastructure nodes **BS1, BS2, BS3** that receive the transmitted signals, wherein at least two infrastructure nodes **BS1** and **BS2** receive a transmitted signal **e1** and **e2** from a single first wireless node **MS** (see **figs. 1 and 3, col. 4 lines 18-27, col. 5 lines 50-55**). Oestreich discloses a module **AE** that combines

at least two of the signals **de1** and **de2** received at the multiple independent infrastructure nodes **BS1** and **BS2** to estimate the signal transmitted by the single first wireless node **MS** (see fig. 1, col. 4 lines 27-37, col. 6 lines 1-12).

But Oestreich does not disclose a network of sensor nodes wherein the multiple independent infrastructure nodes are spaced from each other and each multiple independent infrastructure node is associated with a different set of wireless sensor nodes, or wherein the single first wireless sensor node associated with one of the at least two infrastructure nodes.

Warrior, in related art, discloses a network of sensor nodes (see the title, abstract, col. 1 lines 6-10) wherein the multiple independent infrastructure nodes ( $402_{N1}$ ,  $402_{N2}$ ) are spaced from each other (*infrastructure node read on access point* -see fig. 4, col. 9 lines 20-57) and each multiple independent infrastructure node is associated with a different set of wireless sensor nodes ( $401_{N1}$ ,  $401_{N2}$ ), wherein the single first wireless sensor node associated with one of the at least two infrastructure nodes (see col. 9 lines 22-32 and 52-57).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the invention of Oestreich with the teachings of Warrior and have it include a network of sensor nodes wherein the multiple independent infrastructure nodes are spaced from each other -*infrastructure node read on access point*- and each multiple independent infrastructure node is associated with a different set of wireless sensor nodes wherein the single first wireless sensor node associated with one of the at least two infrastructure nodes, thereby providing means for collecting

detailed measurements (or sensed) data about a particular local environment for the purpose of communicating said data to an application that is located remote from the wireless sensor network, as discussed by Warrior (see col. 2 lines 25-35).

Claims 10 and 16-19 as amended address the same subject matter as claim 1, therefore same rejection applies.

Consider claims 2 and 20 as amended. Oestreich as modified by Warrior teaches claims 1 and 19 above; and Oestreich further discloses a central controller BSC (see Oestreich: fig. 1 col. 4 lines 30-32).

Consider claim 5 as amended. Oestreich as modified by Warrior teaches claim 1; and Warrior further discloses wherein the first wireless nodes transmit signals that are representative of a sensed parameter (see Warrior: col. 2 lines 25-61).

Consider claims 6, 13, 15, and 21 as amended. Oestreich as modified by Warrior teaches claims 1, 10, 13, and 19 above; and Oestreich further discloses diversity techniques (see Oestreich: the title, abstract, col.1 lines 8-9 and 59-64).

Consider claim 9 as amended. Oestreich as modified by Warrior teaches claim 1; and Oestreich further discloses signal combination (see Oestreich: col. 4 lines 27-37).

4. Claims 3, 4, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oestreich (US 6445910 B1), hereafter "Oestreich," in view of Warrior et al. (US 7242294 B2), hereafter "Warrior," as applied to claims 1, 2 and 10, further in view of Ziv et al. (US 20010018347 A1), hereafter "Ziv."

Consider claims 3, 4, 11, and 12. Oestreich as modified by Warrior teaches claims 1, 2, and 10 above respectively; Oestreich further discloses connection of infrastructure nodes BS1, BS2, BS3 to the central controller BSC (see figs. 1 and 3, col. 6 lines 1-6) and Warrior further discloses wireless connection between infrastructure nodes, e.g., access points (see fig. 4, col. 9 lines 43-57); but the aforesaid combined references do not disclose said connection as being hardwired.

Ziv, in related art, discloses hardwire connection between infrastructure nodes (see par. 0023, fig. 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify the invention of Oestreich as modified by Warrior and have it describe hardwire and wireless connection between infrastructure nodes as BS1 and BS2 and the BSC, thereby applying a connection type well known in the art of communications systems.

5. Claims 7, 8, 14, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oestreich (US 6445910 B1), hereafter "Oestreich," in view of Warrior et al. (US 7242294 B2), hereafter "Warrior," as applied to claims 6, 13, and 21, further in view of Smee et al. (US Pat 6990137), hereafter "Smee".

Consider claims 7, 14, and 22 as amended. Oestreich as modified by Warrior teaches claims 6, 13, and 21 above, but does not disclose channel coefficients for combining signals.

Smee, in related art, discloses channel coefficients for combining signals (see Smee: Abstract; col. 5 lines 47-56; col. 14 lines 30-53).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify the invention of Oestreich as modified by Warrior and have it include channel coefficients for combining signals, as taught by Smee, thereby providing a method for determining weight parameters to recombine diversity received signal in a wireless communication system.

Consider claims 8 and 23 as amended. Oestreich as modified by Warrior and Smee teaches claims 7 and 22 above respectively; and Oestreich further discloses diversity techniques (see Oestreich: the title, abstract, col.1 lines 8-9 and 59-64).

#### **(10) Response to Argument**

Regarding the appellant's argument that it would not have been obvious to one of skill in the art at the time that the invention was made to combine Oestreich with Warrior and that the Final Office Action does not establish a *prima facie* case of obviousness, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the teachings of Oestreich, as cited in the rejection, are reasonably applicable to the claim invention in combination with the teachings of Warrior. Oestreich discloses wherein two base stations, which a



person of ordinary skill in the art at the time the invention was made would have admitted as infrastructure nodes for a wireless network, e.g., a cellular system, receive signals from one single mobile station (see fig. 1 and col. 3 lines 64-67), which, again, a person of ordinary skill in the art at the time the invention was made would have admitted as wireless nodes; and combining and evaluating at least two signals received at the bases stations. By alleging that because Oestreich relates to mobile devices that, by their very nature, move from place to place, and as such any particular base station cannot be associated with any particular set of mobile devices, the appellant overlooks the fact that the functions of two base stations receiving signals from a single mobile station in wireless network is unfailingly similar to two infrastructure nodes receiving signals from a single wireless sensor in a wireless network of sensors, which is disclosed by Warrior (see the title, fig. 4). Warrior discusses wherein in certain implementations one or more of the individual sensor nodes 401<sub>N1</sub> and 401<sub>N2</sub> and/or access points 402<sub>N1</sub> and 402<sub>N2</sub> (see fig. 4) may be mobile, which implies that these [preferably access points 402<sub>N1</sub> and 402<sub>N2</sub>], may also be stationary, hence similar to the base stations of a wireless communication system (see col. 9 lines 43-57).

Furthermore, Warrior discusses wherein embodiments of his invention utilize a mobile collector node (such as nodes 303<sub>A</sub> and 303<sub>B</sub> of FIG. 3) for collecting measurement data from the sensor nodes 302 and/or communicating information to the sensor nodes 302. While many examples are described herein using a wireless (e.g., cellular) telephone for implementing such a mobile collector node, any other mobile device having communication capability may be implemented in a similar manner,

including without limitation PDAs, automobiles, cameras, watercraft, aircraft, etc.

Further, many examples are described herein as using a mobile collector node (such as nodes 303<sub>A</sub> and 303<sub>B</sub> of FIG. 3) that communicates via wireless communication with one or more nodes of a wireless sensor network. As used herein, such wireless communication is intended to encompass any type of wireless communication now known or later developed, including without limitation radio frequency (RF), infrared, ultrasonic, microwave, bar-code scanning, RFID, cable, and cellular. Further, while many examples are described herein as using a mobile collector node (such as nodes 303<sub>A</sub> and 303<sub>B</sub> of FIG. 3) that communicates via wireless communication with one or more nodes of a wireless sensor network, alternative embodiments may utilize other types of communication links, including physical coupling (e.g., physical insertion of all or a portion of the mobile collector node into a card reader or cradle, physical coupling via a cable, etc.), for forming a transient (or temporary) communicative coupling between the mobile collector node and a sensor node (see col. 7 lines 44-67 and col. 8 lines 1-5). So, a person of ordinary skill in the art would clearly see that what is missing in Oestreich, i.e., a network or wireless sensors, is provided by Warrior, as shown above; and what is missing in Warrior, i.e., receiving signals from one single mobile station at two base stations [access points] and combining and evaluating at least two signals received at the bases stations [access points], is provided by Oestreich, as also shown above.

Thus, in addition to the fact that both references pertain to the same field of invention, e.g., wireless communication, a person of ordinary skill in the art would

clearly see that the suggestion comes from Warrior for obvious combination with Oestreich, thus rendering the rationale for a *prima facie* case of obviousness appropriate, not faulty, as stated by the appellant.

Regarding the appellant's argument that there is no teaching in Warrior that the wireless sensors 401<sub>n1</sub> or 401<sub>n2</sub> should transmit to more than one of its access point nodes 402<sub>n1</sub> or 402<sub>n2</sub>, the examiner asserts that Oestreich, not Warrior was cited for said limitation (see figs. 1 and 3, col. 4 lines 18-27, col. 5 lines 50-55) This further illustrates the non-obviousness of combining Oestreich and Warrior.

Regarding the appellant's argument that the teaching of Oestreich relating to a single node transmitting to two base stations is not applicable to Warrior, since there is no hand off needs between the sensor nodes and the access node in Warrior, the examiner asserts that with such remark, the appellant veers from claim limitations specifics, which does not include hand off.

Regarding the appellant's argument that even if one of skill attempted to combine Oestreich and Warrior, there would be little likelihood of success--that is, the result would be an inoperable system, the examiner asserts that the appellant fails to acknowledge that the question of operability as one of ordinary skill in the art would understand relates to whether two infrastructure nodes are capable of receiving and combining signal receive from a single node, which as shown to be disclosed by Oestreich (see figs. 1 and 3, col. 4 lines 18-27, col. 5 lines 50-55) and that said node is a wireless sensor node, of which a set is associated with more than one infrastructure node, as shown to be disclosed by Warrior (see the title, abstract, col. 1 lines 6-10;

*infrastructure node* read on *access point* -see fig. 4, col. 9 lines 20-57; see col. 9 lines 22-32 and 52-57). A person of ordinary skill in the art would understand that, independently of the intend of use of to the claimed invention, the limitations, as stated in the claims, are clearly met.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

AG/ag

May 15, 2009

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